Microscopic Analysis and Modeling of Airport Surface Sequencing, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

The complexity and interdependence of operations on the airport surface motivate the need for a comprehensive and detailed, yet flexible and validated analysis and modeling capability. This modeling and analysis can be used to identify the most beneficial areas of research for the Next Generation Air Transportation System (NGATS) -ATM Airportal Project. It is essential, therefore, that the modeling approach properly considers all operational activities and possible capacity constraints in the entire airport surface and terminal operation as a complete system. To accurately model airport surface operations with detail and accuracy, we propose that it is necessary to consider techniques and strategies used to determine the flight's taxi route, and to determine the sequence to be used whenever two or more flights have contention for a taxiway or runway resource. This proposed effort will produce tools to support fundamental research of the concept and requirements for airportal operations in the NGATS by providing microscopic airportal surface modeling components that provide higher fidelity and greater validity of modeling than previously available. Through this effort we will also enhance the Surface Operations Data Analysis and Adaptation tool to provide the analysis capabilities required to support this microscopic airport surface model.

Primary U.S. Work Locations and Key Partners
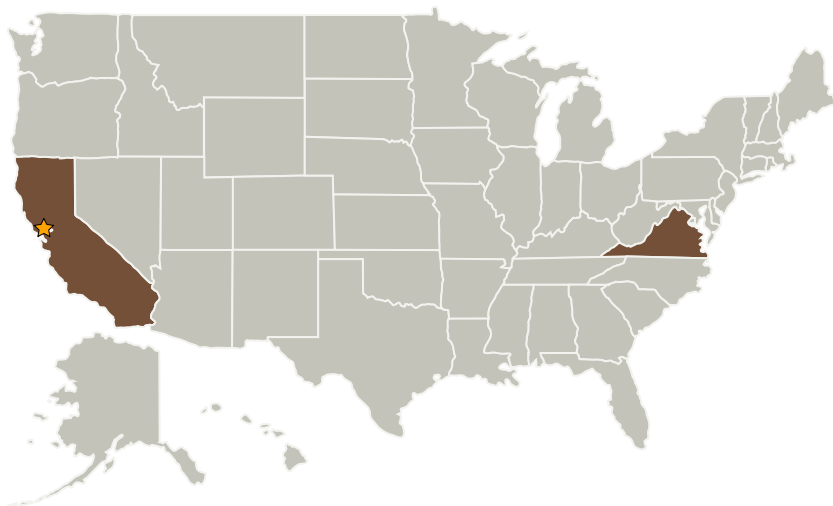
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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Organizations Performing Work	Role	Type	Location
⭐Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Mosaic ATM, Inc.	Supporting Organization	Industry	Leesburg, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Bryan C Wood

Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  └ TX09.4 Vehicle Systems
    └ TX09.4.5 Modeling and Simulation for EDL

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Page 2